

11. The method of claim **10**, wherein the setting the first target value comprises:

receiving target performance information corresponding to an operation of the storage device; and
extracting a first target value of the first operating parameter from the target performance information.

12. The method of claim **10**, wherein

the setting of the target values for the operating parameters comprises generating the first target value based on one among an operation that is being performed, an operation that is to be performed in the host, or a prescribed reference value.

13. The method of claim **10**, wherein

the first operating parameter corresponds to a state of the storage device, and

the loading of the first existing value comprises receiving the first operating parameter from the storage device.

14. The method of claim **10**, wherein

the second operating parameter corresponds to a state of the host, and

the loading of the second existing value comprises measuring or calculating the second operating parameter.

15. The method of claim **10**, wherein

the machine learning algorithm is a Q-learning algorithm, the method further comprises:

calculating a performance score proportional to an absolute value of the difference between the target values and the existing values using the Q-learning algorithm; and

determining a timing label corresponding to a row comprising the highest Q value in a table comprised of rows of combinations of the operating parameters and columns of timing information of the background operation, and

the adaptive scheduling of the background operation is based on the determined timing label.

16. The method of claim **10**, wherein

the storage device comprises a flash memory device, and the background operation is a garbage collection operation corresponding to the flash memory device.

17. The method of claim **10**, wherein the machine learning algorithm is processed using the first target value, the second target value, the first existing value, the second existing value, a first weight of the first operating parameter and a second weight of the second operating parameter.

18. A storage device comprising:

a nonvolatile memory; and

a controller configured to:

receive a first target value and a second target value of a plurality of target values respectively corresponding to a first operating parameter and a second operating parameter of a plurality of operating parameters of the storage device from a host;

load a first existing value and a second existing value of a plurality of existing values of the first operating parameter and the second operating parameter;

adaptively schedule a background operation of the nonvolatile memory based on the first target value, the second target value, the first existing value and the second existing value; and

execute the background operation of the nonvolatile memory based on the adaptive scheduling of the background operation.

19. The storage device of claim **18**, wherein

the first operating parameter corresponds to a state of the storage device, and

the second operating parameter corresponds to a state of the host.

20. The storage device of claim **18**, wherein the adaptive scheduling is based on a machine learning algorithm processed using the first target value, the second target value, the first existing value, the second existing value, a first weight of the first operating parameter and a second weight of the second operating parameter.

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